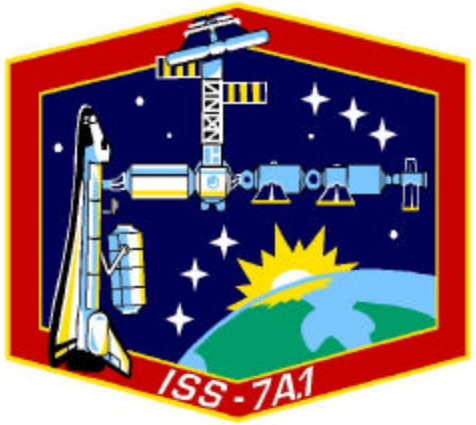
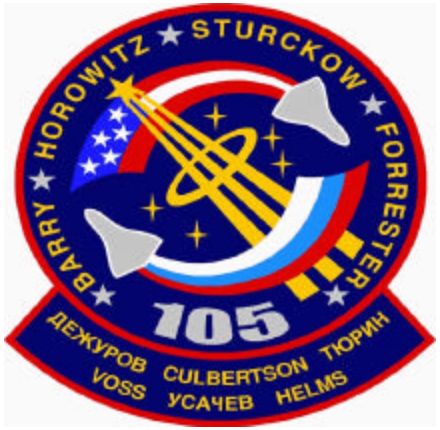
S. L. Pool

Date: August 1, 2001

STS-105/ISS-7A.1
Flight Readiness Review
Space and Life Sciences Directorate





STS-105/ISS-7A.1 Space and Life Sciences Activities

- Crew Health
- DSO's
- Open Items and In-flight Anomalies
- Radiation and Dosimetry Support
- STS Status
- Increment 2/3 Status
- Readiness Statement

SLSD has no constraints to 7A.1/STS-105 launch

STS-105 Crew Health

- **All Crew Physicals will be completed prior to flight**

  - Applicable flight rules are in place

US Crew Surgeon	Smith Johnston, M.D.
US Deputy Flight Surgeon	Jon Clark, M.D.
Russian Surgeon (launch)	Yvgeney Kobzev, M.D.
Russian Surgeon (landing)	Alexander Kulov, M.D.
ISS-3 Crew Surgeon	Steven Hart, M.D.
ISS-2 Crew Surgeon	Pat McGinnis, M.D.

STS-105 DSO's

The following SLSD DSO's have been manifested or scheduled for STS-105/ ISS 7A.1

DSO 498 - Spaceflight and Immune Function (pre/postflight only)

DSO 635 - Spatial Reorientation Following Spaceflight (pre/postflight only)

STS-105 Open Items and Inflight Anomalies (IFA's)

- **All remaining open work is planned and scheduled**

  Open items for STS-105

  - **Crew Physicals**
  - **L-3 day Space Weather Analysis**

- **No open SSP IFA's or constraints**

Radiation Analysis and Dosimetry Support

STS-105 Flight Specific

- Nominal mission (11d 20hr) crew exposure projection
- (AP-8 Solmax Model/USGS70 (EPOCH 70) & GCR Model, 4.1 mrad/d; Q=3.0)

– **Mission Exposure** 174 mrad (313 mrem)

– **Daily Average Exposure:** 16 mrad/day (28 mrem/day)

Onboard Radioactivity (experiment name (# sources) – isotope – activity)

- Fire detectors (all flights) -- orbiter (9) -- Am-241 ➔ 6.12 µCi
- Operational TEPC (1) -- Cs-244 ➔ 1.0 µCi

– **No radiation related experiments/payloads on this flight**

Radiation Analysis and Dosimetry Support, cont.

EVA Exposures (additional skin exposure)

- Additional exposure due to protons in SAA and electrons in outer electron belt

EVA1 (start MET 005/17:10, 6.5 hr.)

▪ Nominal	64 mrad/ 64 mrem	• 1 hr early start	62 mrad/ 62 mrem
▪ 1 hr late start	113 mrad/ 113 mrem	• 2 hr late start	124 mrad/ 124 mrem

EVA2 (start MET 007/17:05, 6.5 hr.)

▪ Nominal	91 mrad/ 91 mrem	• 1 hr early start	75 mrad/ 75 mrem
▪ 1 hr late start	134 mrad/ 134 mrem	• 2 hr late start	143 mrad/ 143 mrem

Contingency EVA Exposures (additional skin exposure)

- **Worst case 6.5 EVA additional skin exposures:**
  - 6.5 hr 431 mrad/ 528 mrem

Nominal IVA Exposures

- **Daily** 16 mrad / 28 mrem

Increment 2 Status

ISS-2 Radiation prediction (ISS-2 124 day nominal mission)

- 1860 mrad/ 3720 mrem (3.72 rem)
- Daily average exposure 15 mrad/day (35 mrem/day)

Increment 3 Status

ISS-3 Radiation prediction (ISS-3 4 month nominal mission)

- 1.8 rad/ 3.2 rem
- Daily average exposure 15 mrad/day (27 mrem/day)
- Additional Personal Radiation Protection System Items on 7A.1 (1 brick)

Certification of Flight Readiness Statement

The activities required to support Flight 7A.1/STS-105 have been accomplished except open work identified (attachment 1) . The Space and Life Sciences Directorate is ready to support Flight 7A.1/STS-105 and initiation of Increment 3.

There are no constraints to proceeding with the planned Flight 7A.1/STS-105 and initiation of Increment 3 pending completion of scheduled open work

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